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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/685,797

10/16/2003

Sung-Hoon Lee

030681-575

5138

21839 7590 03/21/2007
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

BELL, BRUCE F

ART UNIT

PAPER NUMBER

1746

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary

Application No.

10/685,797

Applicant(s)

LEE ET AL.

Examiner

Bruce F. Bell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133): Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 13-20, 22-25 and 27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13, 15-17, 19, 20, 22-25 and 27 is/are rejected.
- 7) ☒ Claim(s) 14 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All. b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Bonnemann et al (6531304).

Bonnemann et al disclose a nanoscale transition metal alloy colloid of Fe/Au. See claim 8.

Bonnemann et al anticipates the applicants instant catalyst as cited in the instant claims since the Fe/Au alloy has been found in colloid form which is indicative of the alloy being in ultra-microscopic particulate form. Applicant will probably argue that the catalyst is not disclosed for use as the cathode of a fuel cell, however, a catalysts intended use is not given patentable weight unless, it is positively recited. The patented

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catalyst as set forth in Bonnemann et al is known and therefore, anticipates the instant claim as set forth. The recitation in the instant claim with respect to the binding force and binding energy for oxygen and hydrogen is considered to be inherent in the alloy absent evidence to the contrary.

Therefore, the prior art of Bonnemann et al anticipates the applicants instant invention as set forth above.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 13, 15-17, 19, 20, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Reddy et al (5132193).

Reddy et al disclose an alloy catalyst of a Pt/Au or a group VIII noble metal and Au combined. See abstract. Catalyst alloys of Pt-Au and Pd-Au are disclose for fuel cells. See col. 2, lines 40-42. The patent further discloses the Pt and Au to be used as the catalytic metal alloy to be used in methanol fuel cells. See col. 3, lines 39-45. The patent further discloses using a high surface area carbon as the support material for the PtAu alloy. See col. 5, lines 45-49. The device is shown to be a fuel cell system having a gas diffusion anode and gas diffusion cathode with a solid polymer electrode therebetween. See col. 3, lines 59-67.

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Reddy et al anticipates the applicants instant invention as set forth in the instant claims. Although Reddy et al does not specifically state that the alloy has hydrogen and oxygen binding forces and binding energy's, it appears to the examiner to be an inherent property of the alloy, absent evidence to the contrary. Further, even though the porosity of the carbon support is not implicitly taught, one having ordinary skill in the art knows that since both the anode and cathode are gas diffusion electrodes, that the gas diffusion is performed through the porosity of the carrier materials which is conventional in the art. Further, even though the anode rather than the cathode shows that the catalyst alloy is applied thereon. The structure of both the electrodes and the fuel cell are set forth in Reddy et al and that until the device is electrically connected, which is not a part of the structure, but how the cell is operated, the structure of the electrode and the fuel cell is the same. Therefore, the applicants instant claims as set forth are anticipated by the Reddy et al patent.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Goebel et al (2003/0138680).

Goebel et al disclose a catalyst of CuZn used in a water gas shift reactor attached to a fuel cell system. See paragraph [0021].

Goebel et al anticipates the applicants instant invention as set forth in the instant claims. Even though the prior art of Goebel does not implicitly teach that the alloy has an oxygen and hydrogen binding force and energy, it appears to the examiner that the alloy would inherently have those properties absent evidence to the contrary. Therefore, the prior art of Goebel et al anticipates the applicants instant invention as set forth in the instant claims.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 2, 4, 13, 15-17, 19, 20, 22-25 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Choi et al (2003/0157393).

Choi et al disclose a quaternary catalyst of Pt-Ru-Rh-Ni for use in a DMFC wherein the alloy is made from metal salts of each constituent. See example 1. The quaternary catalyst can be applied to a porous carrier such as carbon black, activated carbon or carbon fiber as the support. See paragraph [0056].

The prior art of Choi et al anticipates the applicants instant claims as shown by way of the disclosure above with respect to the instant claims as presented. Even though the prior art of Choi et al discloses Pt-Ru materials in the quaternary alloy catalyst, the alloy of NiRh is present and therefore meets the catalyst particle set forth in independent claims 1 and 27, since "comprising" language has been used. The recitation in the instant claims with respect to the binding force and binding energy for oxygen and hydrogen, though not implicitly taught in Choi et al, is considered inherent in the alloy material catalyst as set forth absent evidence to the contrary, since the alloy materials of the instant invention and those of the prior art invention are present. Even though the prior art of Choi et al does not teach that the catalyst is applied to the cathode, the prior art of Choi et al discloses that the catalyst is used in a DMFC which is known in the art to be two gas diffusion electrodes with a solid electrolyte inbetween. Since, the electrodes of a fuel cell don't become an anode and cathode until they are electrically hooked up, the structure of one of the electrodes having the porous carbon carrier on which the catalyst is impregnated reads on the completed fuel cell before being electrically connected. Therefore, the prior art of Choi et al anticipates the applicants instant claims as presented.

Allowable Subject Matter

9. Claims 14 and 18 are allowable over the prior art of record.
10. Claims 14 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest the alloy having the constituents from the groups set forth in the dependent limitations of claims 14 and 18.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB
March 6, 2007


Bruce F. Bell
Primary Examiner
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